

REMARKS

The Examiner is thanked for the thorough review and consideration of the present application. The final Office Action dated December 2, 2003 has been received and its contents carefully reviewed.

By this Response, Applicants have amended claim 1. No new matter has been added. Claims 1-56 are pending with claims 3, 6-11, 14, 15, 17-36 and 38-56 being withdrawn from consideration. Reconsideration and withdrawal of the rejections in view of the above amendments and the following remarks are requested.

In the Office Action, claims 1, 2, 4 and 5 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-22 of co-pending Application No. 09/758,566. Applicants elect not to file a terminal disclaimer at this time.

In the Office Action, claims 1-2 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,259,503, issued to Watanabe et al. (hereafter "Watanabe"). Applicants traverse the rejection because Watanabe fails to teach or suggest the combined features recited in the claims of the present application. For example, Watanabe fails to teach or suggest an IPS-LCD device having, among other features, "a plurality of dielectric protrusions on the plurality of common electrodes and pixel electrodes between the first and second substrates, wherein the dielectric protrusions are disposed along reference lines perpendicular to the plurality of common electrodes and pixel electrodes", as recited in independent claim 1.

Watanabe discloses an active matrix LCD device in which "the electric field generated between the pixel electrode and the common electrode is diagonal to the normal of the surface of the electrodes." (Abstract) The "electric field E generated between the electrode teeth changes its direction on the interface toward the normal line of the interface as the electric field enters from the insulator films into the diagonal slit 401", as depicted in FIG. 12, or in the protrusions 402, as depicted in FIGS 19 and 20 (see col. 6, lines 60-64 and col. 8, lines 10-12).

Applicants respectfully submit Watanabe fails to teach or suggest "a plurality of dielectric protrusions on the plurality of common electrodes and pixel electrodes... wherein the dielectric protrusions are disposed along reference lines perpendicular to the plurality of common electrodes and pixel electrodes" as recited in claim 1 and depicted, for example, in FIG. 10 of the present application. Because Watanabe fails to teach or suggest at least this recited

feature, Watanabe fails to render claim 1 and its rejected claim 2 unpatentable. Reconsideration and withdrawal of the rejection are requested.

In the Office Action, dependent claims 4-5 and 37 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Watanabe in view of Kurihara et al. (hereafter “Kurihara”).

Applicants traverse the rejection because neither Watanabe nor Kurihara, analyzed alone or in any combination, teach or suggest the combined features recited in the claims of the present application.

The Office Action concedes that Wantanabe “does not explicitly disclose dielectric protrusions made of an organic material”, as recited in claims 4 and 5, and “dielectric protrusions in an alternating pattern”, as recited in claim 37. To compensate for the deficiencies of Wantanabe the Office Action relies upon the teachings of Kurihara. Based upon the teachings of Kurihara, the Office Action alleges that “ordinary workers in the art of liquid crystals would find reason, suggestion or motivation to use an alternating pattern to achieve axially symmetrically aligned liquid crystal molecules for improved viewing angle performance”.

Kurihara discloses a liquid crystal display in which “a protrusion structure 7 is formed at least either on the signal electrode 3 or on the scanning electrode 4. The protrusion structure is also covered with the vertical alignment layer 5b or 5a. By providing the protrusion structure 7, the liquid crystal layer 9 has two different thicknesses” (col. 4, lines 21-26). However, Kurihara fails to teach or suggest “dielectric protrusion disposed along reference lines perpendicular to the plurality of common electrodes and pixel electrodes” as recited in independent claim 1, from which claims 4-5 and 37 depend.

Because Kurihara fails to teach or suggest at least this feature of claim 1, Kurihara fails to remedy the deficient teachings of Wantanabe such that one of ordinary skill in the art would be motivated to modify the invention of Wantanabe by the teachings of Kurihara to obtain a device having the combined features recited in claim 1. Accordingly, claim 1 and its rejected claims 4-5 and 37 are patentable over any combination of Wantanabe and Kurihara.

Reconsideration and withdrawal of the rejection are requested.

In the Office Action, dependent claims 12-13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Wantanabe in view of U.S. Patent No. 6,337,726, issued to Kawano et al (hereafter “Kawano”). And, claim 16 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Wantanabe in view of U.S. Patent No. 6,476,900, issued to Lee et al.

(hereafter “Lee”). Applicants respectfully traverse the rejections because neither Wantanabe, Kawano nor Lee, analyzed in any combination, teach or suggest the combined features recited in the claims of the present application.

The Office Action concede that Wantanabe fails to teach or suggest all the features recited in the claims of the present application. To compensate for the deficiencies of the Wantanabe disclosure, the Office Action relies upon Kawano and Lee.

Kawano discloses “an array substrate used for a liquid crystal display element of an in-plane switching type” (col. 1, lines 5-7). However, Kawano fails to teach or suggest an IPS-LCD device including “a plurality of dielectric protrusions on the plurality of common electrodes and pixel electrode between the first and second substrates, wherein the dielectric protrusions are disposed along reference lines perpendicular to the common electrodes and pixel electrodes”, as recited in independent claim 1.

Lee merely discloses a technique to prevent a color shift in LCDs in which “a distance between a pixel electrode and a counter electrode is different among unit pixel space at a portion adjacent to a data bus line and a portion near a center of the unit pixel space such that an intensity of an electric field formed between the pixel electrode and the counter electrode is different at the portion adjacent to the data bus line and the portion near the center of the unit pixel space” (col. 1, lines 40-48). However, like Kawano, Lee fails to teach or suggest an IPS-LCD device including “a plurality of dielectric protrusions on the plurality of common electrodes and pixel electrode between the first and second substrates, wherein the dielectric protrusions are disposed along reference lines perpendicular to the common electrodes and pixel electrodes”, as recited in independent claim 1.

Because Kawano and Lee fail to teach or suggest the features recited in claim 1, Kawano and Lee fail to remedy the deficiencies of Watanabe, as discussed above. Accordingly, claims 12-13 and 16, by virtue of their dependence from independent claim 1, are patentable over any combination of Watanabe, Kawano and Lee. Reconsideration and withdrawal of the rejections are requested.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Application No.: 09/836,351
Amendment dated February 24, 2004
Reply to Office Action dated December 2, 2003

Docket No.: 8733.421.00-US

If the Examiner deems that a telephone conversation would further the prosecution of this application, the Examiner is invited to call the undersigned at (202) 496-7500.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911. A duplicate copy of this sheet is enclosed.

Dated: February 24, 2004

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